Impact of the Change in Payment Mix on the Actual and Perceived Behaviors of Medical Care Providers

Amy Eremionkhale

Georgia State University

Abstract

Prior literature established the link between a person aging out of a parent's insurance coverage at age nineteen and a significant decrease in insurance coverage of those nineteen year old young adults.

Using the regression discontinuity framework, this paper leverages a natural experiment to investigate the impact of the change in the sources of the providers payments on the providers' behavior (supply-side) and on the patients' perception of the providers' behavior (demand-side), using a 14 year sample of unmarried young adults from the Medical Expenditure Panel Survey (MEPS).

I find that although there is a statistically significant change in the sources of the total payments received by medical care providers from patients crossing the age of nineteen threshold, medical care providers do not change their actual treatment decisions. However, the patients do perceive a statistically significant negative change in the behavior of their medical care providers.

Main Findings

1. Total payments received by the medical providers did not change significantly across the threshold.
2. Private Insurance expenditure decreased statistically significantly.
3. Out-of-Pocket expenditure increased statistically significantly.
4. None of the actual behaviors of medical providers measured changed across the threshold.
5. All of the measured perceived behaviors of medical providers changed across the threshold.
   - The impact of **out-of-payments** on patients' perception is **negative**.
   - The impact of **private insurance** payments on patients' perception is **positive**.

Results

Table 1. Discontinuity in Provider Payments – (From Equation 1)

	Age >228 months (α_1)	SE
Payment Variables:		
Total Payment From All Sources ($)	0.899	[3.462]
Payment by Sources:		
Out-of-Pocket ($)	5.771***	[2.018]
Private Insurance ($)	-9.986***	[2.325]
Medicaid ($)	2.474	[2.150]
Others ($)	2.640	[1.894]

Table 2. Discontinuity in Actual and Perceived Provider Behaviors – (From Equation 1)

	Age >228 months (α_1)	SE
Outcome Variables - Treatment Decisions:		
Any Medicine Prescribed	-0.036	[0.029]
Lab Tests	-0.039	[0.035]
Other Diag Test/Exam	-0.045	[0.036]
Outcome Variables - Patients' Perception:		
Enough Time	-0.079**	[0.031]
Listen	-0.105***	[0.028]
Respect	-0.091**	[0.034]

Table 3. Behavior Change per $10 Change in Revenue – (From Equation 2)

$(\frac{\alpha_1^{(outcome)}}{\alpha_1^{(treatment)}} \times \$10)$	Outcome Variables Providers' Treatment Decisions: Any Medicine Prescribed (1)	Lab Tests (2)	Other Diag Test/Exam (3)	Outcome Variables Patients' Perception: Enough Time (4)	Listen (5)	Respect (6)
Payment Variables:						
Total Payment - All Sources ($)	-0.4004	-0.4338	-0.5006	-0.8788	-1.1680	-1.0122
	(1.5755)	(1.7015)	(1.9544)	(3.3994)	(4.5093)	(3.9114)
Payment by Sources:						
Out-of-Pocket ($)				-0.1369**	-0.1819**	-0.1577**
				(0.0720)	(0.0800)	(0.0807)
Private Insurance ($)				0.0791**	0.1051***	0.0911**
				(0.0361)	(0.0372)	(0.0401)

A $10 increase in the patients' out-of-pocket payments received by the provider leads to a statistically significant decrease of 0.1369, 0.1819 and 0.1577 percentage points in the visits where patients' felt their provider spent enough time, listened to them, and respected them respectively. (Negative Relationship.)

A $10 decrease in private insurance payment leads to a statistically significant decrease of 0.0791, 0.1051 and 0.0911 percentage points in the visits where patients' felt their provider spent enough time, listened to them, and respected them. (Positive Relationship.)

Contact

Amy Eremionkhale, Georgia State University
Email: aeremionkhale@gsu.edu
Website: https://amyeremionkhale.com
Phone: (716) 512-3426

Please E-mail or Call with any questions. Thank you.

Introduction

Patients' satisfaction with their medical care is important to payers, hospital administrators, physicians, and patients. It is important because it captures the patients' experience of health care other than the direct effects on health. It also acknowledges the role of the patient as partner in health care (Institute of Medicine 2001).

I first establish that although the total payments received by the providers did not change, the amounts received from the different payment sources changed, as the young adults' aged-out of their parent's insurance.

Payment Sources are: private insurance, Medicaid, out-of-pocket (from the patients), and other sources.

Provider payments maybe endogenous because it is likely correlated with unobserved provider and patient preferences. However, the aging-out policy exogenously determines the insurance status of the patients which affects how medical treatments will be paid.

I then investigate the impact of these changes on the actual and perceived behaviors of medical care providers.

The **provider treatment decisions** measured are indicator variables: "Any Medicine Prescribed", "Lab Tests", and "Other Diagnostic Test/Exam".

The **patients' perception** outcome measures are indicator variables: "Enough Time", "Listen", and "Respect".

Empirical Framework

$$\begin{aligned} Y_{ivrt} &= \alpha_0 + \alpha_1\, AO_{iv} + \alpha_2\, AO_{iv} \times (age_{iv} - 228\text{months}) \\ &+ \alpha_3\,(1 - AO_{iv}) \times (age_{iv} - 228\text{months}) + \delta\, X_{ivt} \\ &+ \text{ICD9}_{iv} + \alpha_t + \alpha_r + u_{ivrt}, \end{aligned} \quad (1)$$

- In the language of instrumental variables, Reduced-form estimates are the discontinuity in actual provider behavior and patient perception of provider behaviors are the reduced-form estimates.
- The first-stage estimate is the discontinuity in provider payments.

$$\beta = \frac{\frac{dy(\text{outcome})}{dz}}{\frac{dy(\text{treatment})}{dz}} = \frac{\alpha_1(\text{"Any Medicine Prescribed"})}{\alpha_1(\text{payments})} \quad (2)$$

- β is the impact of the change in the providers' payments on the actual and perceived behaviors of the providers.

Smoothness Criteria

Table 4. Lack of a Significant Difference in the Observable Characteristics.

	Mean Below Cutoff (1)	Mean After Cutoff (2)	Regression estimates of discrete jump at 228 months (1 year bandwidth) (3)	S.E. for difference estimates in RD (4)
Female	0.63	0.67	0.03	[0.032]
Nonwhite	0.18	0.18	-0.01	[0.022]
Hispanic	0.25	0.29	0.04	[0.024]
Employed	0.72	0.76	0.04	[0.035]
Below 124% of Poverty Line	0.40	0.40	0.01	[0.015]
ICD9	0.04	0.02	-0.00	[0.010]

Notes. The standard errors are clustered at the age level, measured in months. The differences and their related standard errors are estimated using McCary (2008), by regressing each of these demographic variables in the same framework as our regression discontinuity estimates. These difference estimates are also weighted using the individual sample weights assigned in MEPS. The model is estimated on a sample within 12 months above and below the age 228 months threshold. The controls used in this model include year indicators for the years 1996 to 2009, and the region indicators for Northeast, West, Midwest, and South regions.

Conclusion and Contribution

Despite the change in the sources of the total payment, my results showed that there was no change in the actual treatment decisions of the medical care providers. However, the patients did perceive a change for the worse in the behavior of their medical care providers.

Therefore, it is imperative for the medical care providers to pay special attention to their population with higher out-of-pocket payments, especially as the notion of patient perception is increasingly considered an important area for medical care providers to focus on in their efforts to improve their quality of care. (Rubin et al. 1993; Harris et al. 1995; Vermeire et al. 2001)

References

1. Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academy Press; 2001.
2. Rubin HR, Gandek B, Rogers WH, Kosinski M, McHorney CA, Ware JE., Jr Patients' Ratings of Outpatient Visits in Different Practice Settings. Results from the Medical Outcomes Study. Journal of the American Medical Association. 1993;270(7):835–40
3. Harris, Lisa E., Luft, Friedrich C., Rudy, David W., & Tierney, William M. 1995.Correlates of health care satisfaction in inner-city patients with hypertension and chronic renal insufficiency. Social Science Medicine,41(12), 1639–1645.
4. Vermeire, E., Hearnshaw, H., Royen, P.Van, & Denekens, J. 2001. Patient adherence to treatment: three decades of research. A comprehensive review. Journal of Clinical Pharmacy and Therapeutics, 26(5), 331–342.